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AUTHOR Schaeffer, Gary A.; And Others
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ABSTRACT

A primary school drug abuse prevention program was evaluated. The program consisted of 2 years of Magic Circle on the Human Development Program (designed to positively influence students' social and emotional development via a teacher-led discussion of a particular topic) and 1 year of Jigsaw (a structured peer teaching method in which students teach part of the regular curriculum to fellow students). Student outcome variables included attitudes, norms, and behaviors regarding self, peers, school, and drugs. Data were obtained with the Self Observation Scales; a developed Student Questionnaire; a drug-related My Opinion Survey; the total reading and total mathematics stanine scores from the Stanford Achievement Test, Intermediate Level I; student attendance; and teacher ratings of student misbehavior. The 65 experimental and 98 control students were in the fifth grade at the study's end. No effects for boys but negative effects for girls were found on cooperative classroom climate, math achievement, and involvement in marijuana use. The lack of positive effects was consistent with earlier reports that found no pattern of effects for Magic Circle and Jigsaw when they were evaluated independently. (Author/PN)

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The Effects of Three Years of Participation in a Primary Prevention Program on Elementary School Students

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The Napa Project
Pacific Institute for Research
and Evaluation
905 Jefferson Street
Napa, California 94558

Gary A. Schaeffer, Ph.D. Cand.
Joel M. Moskowitz, Ph.D.
Janet Malvin, Ph.D.
Eric Schaps, Ph.D.

Abstract

A primary prevention program consisting of two years of Magic Circle and one year of Jigsaw was evaluated. Student outcome variables included attitudes, norms, and behaviors regarding self, peers, school, and drugs. Experimental students received all three years of the program, and a comparable group of students from control schools received no special program during the three year period. There were 65 experimental students and 98 control students. Students were in the fifth grade at the end of the third year.

No effects were found for boys. For girls, negative effects were found on cooperative classroom climate, math achievement, and involvement in marijuana use. However, these effects probably were not due to the program. Initial student and teacher differences, and Type I errors more readily explained the negative effects. The lack of positive effects was consistent with earlier reports that found no pattern of effects for Magic Circle and Jigsaw when they were evaluated independently.

Introduction

This report evaluates the effectiveness of Magic Circle and Jigsaw offered sequentially to students over a three year period. In the first two years, when students were in the third and fourth grades, experimental students had teachers who had been trained in Magic Circle. In the third year, experimental students had teachers who had been trained in Jigsaw. There was a control group of students at the same grade level whose teachers had received no special training over the three year period.

Magic Circle, or the Human Development Program, is an affective education program developed by Palomares, Bessel, and Ball (Ball, Note 1). The program was designed as a primary prevention strategy to positively influence students' social and emotional development. In a Circle session, which typically lasts 15-30 minutes, the teacher leads a group of 5-12 students in a discussion of a particular topic. The teacher encourages the students' expression of thoughts and feelings and minimizes many of the social risks of group interaction. Verbal participation is always voluntary and confrontation and debate are not allowed. Although students may be asked about their feelings, there is no extended probing or analysis of individual comments. They key elements of the Circle are that everyone gets an opportunity to contribute--even if they choose to remain silent--and that each contributor is listened to carefully by the other Circle members.

Jigsaw is a structured peer teaching method in which students teach part of the regular classroom curriculum to a group of peers (Aronson, Blaney, Stephan, Sikes & Snapp, (1978). In Jigsaw, an academic lesson is divided into five or six parts and each student in a group of five or six is given only one part of the lesson. Students must become experts on their particular part of the lesson and teach it to students in their groups so that all students learn the entire lesson. Prior to teaching, students meet in Expert groups with their counterparts from other groups. In these groups students help each other prepare to teach their part to their respective Jigsaw groups. Like putting together a jigsaw puzzle, each student contributes a necessary and unique piece of information to group mastery of an assigned task.

The goals of Magic Circle were to improve students' social self-esteem and attitudes toward peers. Jigsaw was designed to make student learning more active and student-student interactions more cooperative. Both curricula should foster positive attitudes, behaviors and norms regarding self, peers, and school. Eventually, the positive changes in attitudes and norms should reduce acceptance and use of psychoactive substances (Johnson, 1980).

Earlier reports evaluated the first year of Magic Circle, two years of Magic Circle, and one year of Jigsaw on samples of students that included the current one (Moskowitz, Schaps, and Malvin, Note 2; Schaeffer, Moskowitz, Malvin, Schaps, and Condon, Note 3; Moskowitz, Malvin, Schaeffer, and Schaps, Note 4). Magic Circle and Jigsaw were conducted by classroom teachers who received in-service training in these programs.

The Magic Circle in-service training consisted of nine or ten weekly sessions held for two hours after school. The trainer also visited each participating teacher in his or her classroom at least four times to observe and guide the teacher. Process data showed that in both years the training was highly regarded by the teachers, and that they rated most of the Magic Circle skills as useful. Teachers implemented the skills with moderate to high proficiency. The number of Circles conducted generally was low in that the typical student participated in less than one Circle per week.

Jigsaw in-service training was held in the third year of the program. Sessions were held once a week for ten weeks. The trainer assisted teachers in their Classrooms during and after the training. Most teachers found the Jigsaw skills to be useful, considered themselves proficient at using the skills, and evaluated the training positively. More than half the teachers reported to have used half of the skills at least several times per week. There was wide variation in implementation of Jigsaw activities among the teachers; the average number of hours per week was about two and ranged from one to four hours. Process data collected by an outside observer showed much variability in the quality of implementation of Jigsaw skills and activities.

None of the studies showed a pattern of effects. In the first year of Magic Circle, boys in the experimental group had higher social self esteem and were rated by their teachers as presenting more minor discipline problems than control group boys. No significant effects were found for girls. In the report on two years of Magic Circle, a negative treatment effect was found for boys and girls on reading achievement. Additional analyses of

treatment exposure indicated that for both boys and girls the group exposed to two years of Magic Circle performed worse than the zero- or one-year exposure groups on reading and math achievement. The same pattern was found on minor discipline problems but only for boys. The analyses of Jigsaw's effectiveness revealed an isolated positive effect for girls on academic self-esteem.

The paucity of effects found in the earlier studies narrowed the focus of the present study. Neither Magic Circle nor Jigsaw was effective when evaluated independently. However, the combination of the two treatments may produce desirable outcomes; they may complement each other in such a way that each accounts for the shortcomings of the other. This hypothesis was tested in the present study.

METHOD

Assignment of Schools to Condition

In Fall 1978, 13 elementary schools (grades K-6) from a predominantly white, middle-class, suburban public school system in Northern California were paired based upon characteristics of their students, faculties, principals, and special programs. One school from each pair was randomly assigned to the experimental group and the other to the control group.[1] Students kept their first year group status for the second and third years. Subjects were third-grade students in the first year, fourth-grade students in the second year, and fifth-grade students in the third year.

The following measures were used in matching the schools: a) total student enrollment in the spring prior to the study; b) the number of students in the cohort group during the prior spring; c) the number of "pure" grade 3 (the cohort grade) classes and the number of "mixed" grade classes containing grade 3 students; d) average total reading scores for the cohort group on the Stanford Achievement Test administered at the beginning of the study; f) the percentage of students from families receiving Aid for Families with Dependent Children (AFDC); g) the percentage of students classified as Spanish speaking with either limited or no English language skills; h) the average number of unexcused absences per student during the prior year; and i) an estimate

[1]Since an odd number of schools existed, one triplet was formed from which one school was randomly assigned to the experimental group and the other two to the control group.

the student body's socioeconomic status (made by a school district official). Table 1 shows these comparisons.

In addition, two district officials rated each school regarding the degree to which: a) eligible teachers would support and participate in the in-service training; b) eligible teachers were already competent in classroom management and interpersonal skills; c) the principal would support the in-service training; and d) the principal had influence over his or her teaching staff.

The Analysis Sample

Because only isolated effects of Jigsaw and Magic Circle were found in the separate studies, we wanted to give the combination of treatments the best opportunity to show effects. The sample from the treatment group, therefore, was restricted to students who had been exposed to two years of Magic Circle and one year of Jigsaw. These students were also required to have final posttest data. Students who transferred in or out of the experimental schools during the three year period, and experimental students who had teachers who failed to implement the treatment, were excluded. The control group consisted of all students in the control schools who did not transfer and who had final posttest data.

The sample was further reduced to improve the comparability of groups. In one experimental school, no students had three years of treatment. Hence, that school and its control counterpart were excluded from the analysis. In another experimental school only five students met the inclusion critera, while its control counterpart was a large school. Because this pair of schools had

TABLE 1

COMPARISON OF ORIGINAL EXPERIMENTAL AND CONTROL SCHOOLS
AFTER MATCHING AND RANDOM ASSIGNMENT TO CONDITION

	Experimental Schools (N=6)		Control Schools (N=7)	
	Mean	Standard Deviation	Mean	Standard Deviation
Total School Enrollment	349	130	294	49
Cohort Grade Enrollment	51.0	24.5	40.3	11.7
Number of Cohort Classes per School				
Grade 3 only classes	2.00	0.63	1.29	0.95
"Mixed" grade classes	0.33	0.52	0.57	0.98
SAT Reading Achievement Scores	115.2	7.8	117.3	12.2
SDRT Reading Comprehension and Vocabulary Scores	66.0	4.6	65.9	6.0
Percent of Enrollment Receiving AFDC	13.0	8.0	11.6	10.4
Percent of Spanish-Speaking	2.3	3.2	1.5	3.1
Average Number of Unexcused Absences per Pupil	2.0	0.3	1.8	0.9
Socioeconomic Status Rating	46.7	34.2	47.1	30.1
Eligible Faculty Support Rating	0.86	0.22	0.93	0.19
Eligible Faculty Competence Rating	0.45	0.39	0.60	0.45
School Principal Support Rating	0.75	0.42	0.71	0.39
School Principal Competence Rating	0.66	0.41	0.29	0.39

primarily students from families with low socioeconomic status, inclusion of these schools may have biased the sample against finding positive treatment effects. This pair of schools was also excluded from the analysis.

At the beginning of the study, there were 251 experimental students and 281 control students. The attrition rate, defined as the percent of subjects for whom pretest data were available but no final posttest data were available, was 32% for the experimental group and 41% for the control group. Experimental students who had not been exposed to three years of treatment were not included in the analysis. In the experimental group, one of 15 classes of students did not receive Magic Circle in the first year, seven of 13 classes did not receive it in the second year, and two of 13 did not receive Jigsaw in the third year. Analysis of the final posttest data, which excluded the two pairs of schools discussed earlier, included 31 experimental boys, 34 experimental girls, 47 control boys, and 51 control girls.

Instrumentation and Measures

Student survey. The pretest was administered in October 1978 and the final posttest in May 1980. (Interim posttests were administered in May 1978 and May 1979.) The questionnaires were administered by substitute teachers trained in survey procedures. For the pretest, the items were administered orally by the survey administrators. For the final posttest, the students read the items to themselves (assisted by the administrator as necessary). Make-up sessions were held for students who were absent from the original session.

Student self-report data. Student pretest self-report data were obtained with the Self Observation Scales (SOS, Intermediate Level, Form C) developed by Stenner and Katzenmeyer (Note 5). This nationally normed instrument has empirically determined scales which measure the ways children perceive themselves and their relationships to their peers, their teacher, and their school. The questionnaire contains 60 statements to which students respond "yes" or "no."

Student data at the final posttest were obtained with an instrument developed for this study called the Student Questionnaire. This instrument consists of two parts. Part 1 contains 18 items selected from the Intellectual Achievement Responsibility Questionnaire (Crandall, Katkovsky & Crandall, 1965). Selection of items was based upon published psychometric properties.[2] This questionnaire measures the belief in one's own control over, and responsibility for, intellectual-academic successes and failures. Part 2 contains three sets of items: a) the Scholastic Subscale from the Intermediate Level of the Self Appraisal Inventory (20 items) (Instructional Objectives Exchange, Note 6), a criterion-referenced measure of academic self-esteem; b) the Authority and Control (12 items) and Interpersonal Relationships With Pupils (12 items) subscales from the Intermediate-Level of the School Sentiment Index (Instructional Objectives Exchange, Note 7), a criterion-referenced measure of attitudes toward school; and c) a measure of perceived peer attitudes toward school developed for this study by adapting 11 items from eight instruments that measure attitudes toward school. The Student Questionnaire included all items employed in the pretest measures.

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[2]Four items referring to "parents" were adapted to read "an adult who knows you" in order to conform to California Education Code which requires that active parental permission be secured before requesting information about family life. This study employed passive consent procedures.

Drug-related data at the final posttest were collected using the My Opinion Survey (MOS). This instrument was developed for this study to assess student opinions of each of the three "gateway" drugs; alcohol, cigarettes, and marijuana. Specifically, students were asked about perceived costs (i.e., negative consequences) and benefits (i.e., positive consequences) for use of the drug, their lifetime use, their current use ("last four weeks"), their attitudes toward use, their perceptions of peers' attitudes toward use ("most kids in my class"), and their perceptions of peer use.

The confidentiality of the MOS administration was enhanced by prelabeling questionnaires with student names on the cover sheet and students' school district identification numbers on page one. After receiving the questionnaire, students tore off the cover page that displayed their names.

The scales used in the data analysis were derived from empirical scaling.[3] Data were collected from large samples of students in grades 3-6. Samples were selected from each grade level. Item means, variances, and intercorrelations were found to be similar across grade levels; thus, scaling procedures were applied across grades. Item intercorrelations were subjected to separate multiple group confirmatory factor analyses.[4] The resultant scales appear in Table 2 with the number of items contained in each and their internal consistency reliabilities estimated by coefficient alpha. The scales were affective teaching climate (Affec Climate), attitudes toward school (Att School), social self-esteem (Social Self), attitudes toward peers (Att Peers), locus of control for success

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[3]The details of the scaling have been reported by Moskowitz, Condon, Brewer, Schaps & Malvin (Note 8).

[4]The matrices were computed using pairwise deletion of missing values and communalities were inserted into their diagonal elements.

TABLE 2

STUDENT PRETEST AND FINAL POSTTEST SCALES, NUMBER OF ITEMS, AND INTERNAL CONSISTENCY RELIABILITIES (COEFFICIENT ALPHA)

	Pretest		Final Posttest	
Scale	Number of Items	Reliability	Number of Items	Reliability
Social Self	6	.62	6	.66
Att Peers	8	.76	8	.80
Affec Climate	7	.74	17	.91
Att Sch	6	.68	6	.74
Acad Self	NA	-	11	.79
Control Succ	NA	-	7	.56
Control Fail	NA	-	8	.72
Peer Att Sch	NA	-	8	.72
Alc Costs	NA	-	5	.72
Cig Costs	NA	-	5	.61
Pot Costs	NA	-	5	.66
Alc Involve	NA	-	5	.81
Cig Involve	NA	-	5	.61
Pot Involve	NA	-	5	.72

NOTE: Pretest reliabilities were computed on data collected in Fall 1978 and final wave reliabilities were computed on data collected in Spring 1979. Reliabilities for the alcohol, cigarette, and marijuana scales were computed with a sample size of 386 and the other scales with sample sizes of about 515. NA indicates that this scale was not administered.

(Control Succ), locus of control for failure (Control Fail), academic self-esteem (Acad Self), perceived peer attitudes toward school (Peer Att Sch), perceived costs of, and involvement in alcohol, cigarette, and marijuana use (Alc Costs, Cig Costs, Pot Costs, Alc Involve, Cig Involve, Pot Involve). The involvement scales were comprised of items measuring personal use and attitudes, and perceived peer use and peer attitudes.[5]

Measures of cooperative (Coop) and competitive (Comp) classroom climate were also included in the final posttest. These measures, which were developed for this study, assess the students' perceptions of the prevalence of cooperation and competitio in their classrooms. The alpha coefficients were .73 and .77, respectively.

Student archival outcome data. In addition to the self-report data gathered directly from students, we obtained achievement data collected by the school district as part of its regular testing activities. For our pretest reading measure, we employed reading comprehension stanine scores from the Stanford Diagnostic Reading Test (Level Green) (SDRT) administered in September 1978. For the 10% of students who missed this test, we substituted total reading stanine scores from the Stanford Achievement Test (Primary Level II) administered the prior May. According to the test publisher (Karlsen, Madden, and Gardner, Note 9), these two tests correlate about .87. For our posttest

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[5]For each substance, the five component items exhibited good internal consistency, providing support for a single unidimensional construct. The positive relationships between the perceived peer measures with own use and attitude measures indicate that students' personal use and attitudes parallel their peers, or that they project their personal use and attitudes onto their peers.

measure (Read, Math), we employed the total reading and total mathematics stanine scores from the Stanford Achievement Test, Intermediate Level I (Madden, Gardner, Rudman, Karlsen, and Merwin, Note 10), administered in May 1980.

Two different measures of student attendance were taken. The total number of unexcused absences for the school year (Unex Abs) was obtained for each student from the school district's records. This type of absence occurs when a student is absent from school and does not provide the school with a parental excuse indicating that the student was sick. In addition, the average monthly number of absences for each student (Total Abs) during the fifth through eighth school months (January through April) was extracted from teachers' records.

Teacher ratings of student misbehavior were obtained at the time of the final posttest. Using the class roster, each teacher indicated how frequently each child had been a minor (Minor) and major (Major) discipline problem during the previous four months. A five-point scale was used that ranged from "never" to "about once a day or more."

Data Analysis

The problem of missing data arose when scale scores were computed. A non-missing scale score was imputed for a student if responses to at least 60% of the items comprising that scale were present. Any missing item score was replaced by the mean score for that item of the appropriate sex. This procedure allows for maximum use of available item data while minimizing bias of imputed values. It does, however, constrain variances and artificially

inflate degrees of freedom. When more than 40% of the responses to the items of a scale were missing, the student received a missing value for that scale.

Only student-level data were analyzed because classes did not remain intact. From year to year students were frequently put into a class with a different group of students. As a result, defining classes over the three year period was impossible.

Interpretation of results is based on patterns of findings rather than on single findings. The Type I error rate for the analyses was set at .05. Analyses were conducted separately for each sex due to heterogeneity of variance and covariance in many of the measures. Since many analyses were conducted, isolated effects must be interpreted cautiously because they may be due to Type I error.

Apparent treatment effects also must be interpreted cautiously because the treatment was actually a combination of two treatments. If students who have received both Magic Circle and Jigsaw show positive effects, then further analyses will dissect the combination to determine which individual treatment caused the effects.

Results

Initial Equivalence

Table 3 lists the means and standard deviations of the pretest and final posttest for each sex and treatment group.[6] High scores are desirable for the first 12 variables, and low scores are desirable for the last variables listed.

The restricted experimental and control groups were compared at pretest. One-way ANOVAs were performed on each pretest with group as the factor. No differences were found for boys. Control girls scored higher than experimental girls on Affec Climate, F [1,69] = 4.06, p <.05, and Att School, F [1,70] = 5.34, p <.03.

Analysis of Final Posttest

One-way ANOVA or ANCOVA, with group as the factor, was performed separately for each sex on each final posttest scale. ANCOVA with a pretest as the covariate was performed on Read (with SDRT as the covariate), Math (SDRT), Affec Climate (Affec Climate), Social Self (Social Self), Att Peers (Att Peers), Acad Self (Acad Self), and Att School (Att School).

Results are summarized in Table 4. No significant effects were found for boys. For girls, no positive effects were found, but negative effects were found for Math, Coop, and Pot Involve.

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[6]Because their distributions were extremely skewed, the following variables were transformed using $X' = \log_{10}(X + 1)$: Unex Abs, Major, Total Abs, Cig Involve, and Pot Involve.

TABLE 3

MEANS AND STANDARD DEVIATIONS FOR STUDENT DATA
BY SEX BY TREATMENT CONDITION

		Males				Females			
		Experimental		Control		Experimental		Control	
Measure		M	SD	M	SD	M	SD	M	SD
Affec Climate	Pretest	1.82	.26	1.84	.21	1.88	.21	1.95	.08
	Final Posttest	1.79	.26	1.72	.34	1.82	.25	1.81	.28
Social Self	Pretest	1.66	.27	1.67	.30	1.65	.21	1.73	.24
	Final Posttest	1.82	.26	1.84	.22	1.84	.18	1.84	.21
Att Peers	Pretest	1.63	.33	1.68	.23	1.70	.26	1.69	.27
	Final Posttest	1.72	.28	1.70	.27	1.76	.23	1.72	.32
Att School	Pretest	1.58	.30	1.61	.28	1.59	.30	1.74	.24
	Final Posttest	1.66	.30	1.57	.30	1.69	.27	1.65	.27
SDRT	Pretest	5.19	1.97	5.43	1.85	4.94	1.70	5.15	1.46
Read	Final Posttest	5.93	1.68	5.85	1.74	5.41	1.29	5.88	1.57
Math	Final Posttest	5.51	2.17	5.93	1.45	5.03	1.49	5.75	1.79
Control Succ	Final Posttest	1.81	.18	1.78	.20	1.84	.16	1.82	.16
Control Fail	Final Posttest	1.68	.24	1.63	.25	1.76	.21	1.74	.22
Acad Self	Final Posttest	1.74	.23	1.76	.21	1.79	.18	1.75	.23
Peer Att Sch	Final Posttest	1.63	.32	1.60	.27	1.60	.25	1.67	.28
Coop	Final Posttest	1.79	.25	1.71	.30	1.70	.28	1.82	.22
Comp	Final Posttest	1.39	.30	1.52	.32	1.46	.29	1.43	.29
Minor	Final Posttest	2.40	1.28	2.84	1.63	1.66	1.00	2.09	1.35
Major	Final Posttest	.39	.15	.41	.15	.31	.06	.34	.11
Total Abs	Final Posttest	.24	.21	.21	.19	.32	.22	.24	.22
Unex Abs	Final Posttest	.17	.26	.25	.30	.26	.30	.17	.29
Alc Cost	Final Posttest	.55	.60	.58	.62	.61	.52	.53	.50
Cig Costs	Final Posttest	.38	.41	.32	.40	.59	.48	.48	.48
Pot Costs	Final Posttest	.37	.49	.36	.48	.38	.45	.30	.44
Alc Involve	Final Posttest	1.49	.79	1.58	.68	1.50	.71	1.45	.59
Cig Involve	Final Posttest	.31	.09	.28	.08	.32	.10	.31	.09
Pot Involve	Final Posttest	.28	.10	.26	.09	.29	.09	.25	.07

TABLE 4

SUMMARY OF ANALYSIS OF STUDENT DATA[a]

Final Posttest Measure	Males		Females	
	B	F	B	F
Affec Climate	.12	1.25	.26	<1
Social Self	.31	<1	.23	<1
Att Peers	.19	1.36	.23	<1
Att School	.11	3.93	.33	<1
Read	.73	<1	.63	1.53
Math	.48	<1	.66	5.25[b]
Control Succ		<1		<1
Control Fail		<1		<1
Acad Self		<1		<1
Peer Att Sch		<1		1.23
Coop		1.25		4.19[b]
Comp		<1		<1
Minor		1.51		2.36
Major		<1		1.29
Total Abs		<1		2.75
Unex Abs		1.24		1.85
Alc Cost		<1		<1
Cig Cost		<1		<1
Pot Cost		<1		<1
Alc Involve		<1		<1
Cig Involve		2.96		<1
Pot Involve		1.26		4.27[b]

[a]B refers to the raw regression coefficient of final posttest on pretest covariate where ANCOVA was performed. Error degrees of freedom for males ranged from 62 to 77, and for females from 68 to 84.

[b]These were negative effects significant at the .05 level.

Discussion

No effects were found for boys, and there was no evidence of initial nonequivalence. Thus, the treatment did not significantly influence boys' attitudes, behaviors, or norms regarding self, peers, school, or drugs.

The negative effects found for girls on math achievement, cooperative classroom climate, and involvement in marijuana use almost certainly cannot be attributed to the treatment. Neither Magic Circle nor Jigsaw were designed to directly affect math achievement or involvement in marijuana use. Furthermore, it is doubtful that three years of treatment exposure would directly affect these either, particularly in a negative way. Although Jigsaw was designed to increase the perception of a cooperative classroom climate, an earlier report (Moskowitz, et al., Note 4) found no effect on this variable. Hence, it is unlikely that the negative effect on cooperative classroom climate found in the present study is a result of the treatment.

The negative effects found for girls may be accounted for by initial student differences. The control group was significantly advantaged[7] on two of the five pretest measures, and on two others the control group also was advantaged, but the difference was not significant. (Group means were the same on the fifth pretest.) Perhaps more extensive pretesting would have suggested that female control students were advantaged generally, as compared

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[7] "Advantaged" and "disadvantaged" are used with respect to correlates of drug abuse.

to female experimental students. If this were the case, the analyses of variance conducted on the posttest measures of involvement in marijuana use and cooperative classroom climate would simply reflect initial differences. Furthermore, the analysis of covariance performed on mathematics achievement probably would underadjust for initial differences, allowing some pretest differences to be reflected in the final posttest comparisons (Reichardt, 1979).

Teacher differences also may have contributed to the negative effects for girls. A small and rather select group of students were included in the analysis; perhaps they had a select group of teachers. For example, the experimental students, who were disadvantaged as compared to the control students, may have been exposed to "poorer" teachers. In other words, only teachers in need of assistance may have participated in the training. Although yearly comparisons of all participant teachers showed no systematic differences from control teachers, the few teachers who taught students in the final analysis sample may have been different in ways related to student outcomes.

Finally, Type I errors may account for the effects. Because many analyses were conducted, it is likely that a few spurious effects would appear. Spuriousness is a probable explanation as the three effects obtained were not interrelated substantively.

Magic Circle and Jigsaw as implemented in this study were ineffective in producing patterns of desirable outcomes. The current report and earlier reports that evaluated Magic Circle and Jigsaw independently (Notes 3, 4, and 5) all support this conclusion. Little faith should be put in Magic Circle and Jigsaw as primary prevention programs.

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